



AUTOMATION | ELECTRICAL
DATA COMM & SECURITY
INDUSTRIAL & SAFETY
FLUID POWER

INDUSTRIAL AUTOMATION

TUE. MAR. 20 -
FRI. MAR. 23
8 AM - 5 PM

SMC CAPE GIRARDEAU
2333 RUSMAR ST.
CAPE GIRARDEAU, MO
63703

COURSE NUMBER MFG213

INDUSTRIAL MAINTENANCE - INDUSTRIAL ELECTRICAL CONTROLS FUNDAMENTALS

**Rockwell
Automation**

TRAINING EVENT

This course is designed for individuals who are responsible for installing, maintaining, and troubleshooting electromechanical machine controls.

At the completion of this course, you will be able to:

- Define the safety considerations that must be observed when installing, checking, or locking out electrical equipment
- Define uses and functions of input and output devices, relays, and motors
- Demonstrate the reading of schematic diagrams and logic
- Define an open and short condition, and perform voltage and current measurements
- Demonstrate the proper use of the following test equipment in lab to measure voltage, current, resistance, and continuity: VOM, DVM, multi-meters, continuity testers, and amp probe
- Approximate secondary voltage, secondary current, and primary current of a transformer when given its turns ratio, primary voltage, and secondary load
- Identify the proper wiring configurations of a control transformer's primary current for 240V and 480V operation
- Approximate a transformer's maximum primary current for 480V operation, using the nameplate formation

+ HANDS-ON

Throughout this course, you will have the opportunity to practice the skills you have learned through a variety of hands-on exercises.

COST

\$2,070

Includes Lunch Each Day

REGISTER

To register, contact Erica Masterson at emasterson@smcelectric.com by Tuesday, February 27.

Prerequisites

To successfully complete this course, the following prerequisite is required:

- Familiar with basic electricity

SCHEDULE

Day 1

- Electrical Safety
- Electrical Fundamentals
 - Fundamental concepts and terms
 - Sources of electricity
 - Transformers
 - Wiring Devices
 - Wiring Standards
- Hands-on lab

Day 2

- Input Devices
 - Push Buttons
 - Limit, Proximity, Toggle, Rotary Switches
 - Relays
- Output Devices
 - Motors
 - Heaters
 - Panel Meters
 - Light Indicators
- Disconnect Devices
 - Fuses
 - Circuit Breakers
 - Overloads
- Contactors
- Use of Multimeter
- Hands-on lab

Day 3

- Logic Devices
 - Timers
 - Counters
- Schematic Diagrams
 - BOM
 - Title blocks
 - Basic Schematic Symbols
 - Wire identification
- Logic Diagrams
 - Switches
 - Timers
 - Relays
 - Truth Tables
- Ladder Diagrams
 - Rung Identification
 - Power Rail Identification
- Hands-on lab

Day 4

- Basic Machine Control Systems
- Distribution
 - Three-Phase Devices
- Build Circuits
- Circuit Troubleshooting
- Grounded and Ungrounded Control Circuits
- Hands-on lab